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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/866,973	05/29/2001	Yoshimasa Hosonuma	14650	7391

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400 GARDEN CITY PLAZA  
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EXAMINER

PHU, SANH D

ART UNIT PAPER NUMBER

2682

DATE MAILED: 04/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/866,973

Applicant(s)

HOSONUMA, YOSHIMASA

Examiner

Sanh D Phu

Art Unit

2682

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05/29/2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5,8,10-14,17,19 and 20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5,8,10-14,17,19 and 20 is/are rejected.
- 7) ☒ Claim(s) 6,7,9,15,16 and 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3</u> .   | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

***Information Disclosure Statement***

1. The IDS filed 4/5/2002 has been considered and recorded in the file.

***Claim Rejections – 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

**Office action:**

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1–5, 8, 10–12 are rejected under 35 U.S.C. 102(b) as being anticipated by Tamura (5,335,368).

Regarding to claim 1, see Fig. 1, 2, 3, 4, 5 and 6, Tamura discloses a foldable portable radio terminal, comprising:

a portable radio terminal body including a first body (10) and a second body (40) connected for pivotal folding movement to each other;

an antenna (20) mounted on said first body (see Fig. 1);

an antenna matching circuit (12) for determining an antenna characteristic of said antenna (see Fig. 3); and

a matching characteristic changeover circuit (13) for changing over the characteristic of said antenna matching circuit so that the antenna characteristic when said portable radio terminal body is folded and the antenna characteristic when said portable radio terminal body is not folded are equal to each other (see Fig. 2 and 3).

Regarding to claim 2, Tamura discloses a foldable portable radio terminal further comprising a folded state detection circuit (13a) for detecting whether or not said portable radio terminal body is folded and issuing a detection signal representative of a result of the detection, and wherein said matching characteristic changeover circuit changes over the characteristic of said antenna matching circuit in response to the detection signal of said folded state detection circuit (see Fig. 1, 2, 3 and 4, col. 3, line 17 to col. 4, line 35).

Regarding to claim 3, Tamura discloses that a foldable portable radio terminal wherein said antenna matching circuit determines the antenna

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characteristic in a state wherein said portable radio terminal body is folded, and said matching characteristic changeover circuit changes over the characteristic of said antenna matching circuit so that the antenna characteristic of said antenna matching circuit when said portable radio terminal body is not folded may be equal to the antenna characteristic in the state wherein said portable radio terminal body is folded (see Fig.1, 2, 3 and 4, col. 3, line 17 to col. 4, line 35).

Regarding to claim 4, Tamura discloses that a foldable portable radio terminal wherein said matching characteristic changeover circuit is connected to said antenna and supplies current so as to cancel high frequency current distributed in said portable radio terminal body in order to eliminate variation of the high frequency current between when said portable radio terminal body is folded and when said portable radio terminal body is not folded (see Fig.1, 2, 3 and 4, col. 3, line 17 to col. 4, line 35).

Regarding to claim 5, Tamura discloses that a foldable portable radio terminal wherein said matching characteristic changeover circuit includes:

a first capacitor connected to an antenna feeding point (C5);

an inductor (L2) connected at an end thereof to said first capacitor and grounded at the other end thereof; and current production means for supplying current to said inductor (see Fig.1, 2, 3 and 4, col. 3, line 17 to col. 4, line 35).

Regarding to claim 8, Tamura discloses that a foldable portable radio terminal wherein the capacitance value of said first capacitor and the inductance value of said inductor are determined so that said antenna-matching circuit exhibits an optimum antenna characteristic when said portable radio terminal body is folded (see col.3, line 63 to col. 4, line 4).

Regarding to claim 10, Tamura discloses that a foldable portable radio terminal wherein said antenna includes a helical antenna having an antenna feeding point at a base portion thereof (see Fig. 7 and 8).

Regarding to claim 11, Tamura discloses that a foldable portable radio terminal wherein said helical antenna is provided at a tip end of a whip antenna mounted for telescopic movement into and out of said portable radio terminal body, and the base portion of said helical antenna serves as the antenna feeding point when said whip antenna is accommodated in said portable radio terminal body (see Fig. 7 and 8).

Regarding to claim 12, Tamura discloses that a foldable portable radio terminal wherein said antenna matching circuit determines the antenna characteristic in a state wherein said portable radio terminal body is not folded, and said matching characteristic changeover circuit changes over the characteristic of said antenna matching circuit so that the characteristic of said antenna matching circuit when said portable radio terminal body is folded may be equal to the antenna characteristic in the state wherein said portable radio terminal body is not folded (see col. 3, lines 47-55).

***Claim Rejections – 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 13, 14, 17, 19, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura (5,335,368) in view of EATON (WO 96/37967).

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Regarding to claim 13, Tamura does not disclose a current that cancels high frequency current between when a portable radio terminal body is not folded and when said portable radio terminal body is folded.

Eaton discloses that a foldable portable radio terminal wherein said matching characteristic changeover circuit is connected to said antenna and supplies current so as to cancel high frequency current distributed in said portable radio terminal body in order to eliminate variation of the high frequency current between when said portable radio terminal body is not folded and when said portable radio terminal body is folded (see Eaton, page 9 lines 4-20).

At the time of the invention was made, it would have been obvious for one skilled in the art to implement the matching impedance circuit, as taught by Eaton's, to include a current source circuit so that it is not only able to eliminate the variation of the high frequency current between when "folded" and "unfolded" mode but it is also able to adjust the impedance of the matching network constantly.



Regarding to claim 14, Tamura in view of Eaton discloses that a foldable portable radio terminal wherein said matching characteristic changeover circuit includes:

a first capacitor (C5) connected to an antenna feeding point (see Tamura Fig. 4);

an inductor (L2) connected at an end thereof to said first capacitor and grounded at the other end thereof (see Tamura Fig. 4).

Tamura does not disclose a supplying current.

However, Eaton discloses a current production means for supplying current to said inductor (see Eaton, page 9, lines 4-20).

At the time of the invention was made, it would have been obvious for one skilled in the art to implement the matching impedance circuit, as taught by Eaton's, to include a current source circuit so that it is not only able to eliminate the variation of the high frequency current between when "folded" and "unfolded" mode but it is also able to adjust the impedance of the matching network constantly.

Regarding to claim 17, Tamura discloses that a foldable portable radio terminal wherein the capacitance value of said first capacitor and the inductance value of said inductor are determined so that said antenna matching circuit exhibits an optimum antenna characteristic when said portable radio terminal body is not folded (see col.3, line 63 to col. 4, line 4).

Regarding to claim 19, Tamura discloses that a foldable portable radio terminal wherein said antenna includes a helical antenna having an antenna feeding point at a base portion thereof (see Fig. 7 and 8).

Regarding to claim 20, Tamura discloses that a foldable portable radio terminal wherein said helical antenna is provided at a tip end of a whip antenna mounted for telescopic movement into and out of said portable radio terminal body, and the base portion of said helical antenna serves as the antenna feeding point when said whip antenna is accommodated in said portable radio terminal body (see Fig. 7 and 8).

***Allowable Subject Matter***

2. Claim 6, 7, 9, 15, 16 and 18 are objected to as being dependent upon a

rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding to claim 6, 7, 9, 15, 16 and 18, none of the prior of the record teaches that a foldable portable radio terminal wherein said current production means includes a diode for supplying current to a connection point between said first capacitor and said inductor, and a resistor connected in series to said diode as recited in claim 6.

### *Conclusion*

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sanh D Phu whose telephone number is (703) 305-8635. The examiner can normally be reached on 8:00-16:30.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 703-301-6739. The fax phone number for the organization where this application or proceeding is assigned is (703) 746-9817.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-8635.

Sanh D. Phu  
Examiner  
Art Unit 2682

SP



VIVIAN CHIN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600  
41964